

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS

1. (Currently Amended) A universal serial bus (USB) remote host control driver, comprising:

a port for connecting to a network, said remote host control driver ~~port~~ configured to communicate with ~~couple over said network~~ one or more USB device adapters via said port over the network, each of said USB device adapter having a discrete network address, ~~to said remote host control driver~~;

a network protocol stack, said protocol stack for encapsulating USB packets in network packets and for decapsulating USB packets from network packets;

a polling routine configured to poll each of possible USB device adapters connected to the network in accordance with a candidate list, and create a master list of the USB device adapters which responded to the polling; and

a memory for ~~simultaneously~~ storing the master list, the master list containing the discrete network address of each of said USB device adapters and an address(es) and a corresponding identifier of each USB device connected via the corresponding a respective USB device adapter to the remote host control driver.
2. (Currently Amended) The USB remote host control driver of claim 1, wherein ~~further comprising:~~

~~a polling routine~~, said polling routine is further configured to contact each of said USB device adapters in accordance with the master list, identify each of said USB devices connected to each USB device adapter, and store the identifications of the USB devices in said memory.

3. (Original) The USB host control driver of claim 1, where the network packets are Ethernet packets.

4-5. (Cancelled)

6. (Currently Amended) An Internet gateway, comprising:
a port for connecting to the Internet; and
a universal serial bus (USB) remote host control driver, said USB remote host control driver including having:
 - (a) a port for connecting to a local network, said remote host control driver port configured to communicate with ~~couple over said network~~ one or more USB device adapters via said port over the network, each of said USB device adapters having a discrete network address, ~~to said remote host control driver~~;
 - (b) a local network protocol stack, said protocol stack for encapsulating USB packets in local network packets and for decapsulating USB packets from local network packets;

- (c) a polling routine configured to poll each of possible USB device adapters connected to the local network in accordance with a candidate list, and create a master list of the USB device adapters which responded to the polling; and
 - (d) a memory for simultaneously storing the master list, the master list containing the discrete network address of each of said USB device adapters and an address(es) and a corresponding identifier of each USB device connected via the corresponding a-respective USB device adapter to the remote host control driver; and
 - ~~(d) a polling routine, said polling routine for contacting each of said device adapters, identifying each of said USB devices, and storing the identifications in said memory.~~
7. (Original) The Internet gateway of claim 6, where the local network is an Ethernet.
8. (Previously Presented) The Internet gateway of claim 6, further comprising a processor configured to receive unencapsulated USB packets from the protocol stack.
9. (Previously Presented) The Internet gateway of claim 8, further comprising:
a means for connecting to a local video monitor.

10. (Previously Presented) The Internet gateway of claim 8, further comprising:
a means for connecting to a local telephone.
11. (Previously Presented) The Internet gateway of claim 8, further comprising:
a means for connecting to a public television cable.
12. (Previously Presented) The Internet gateway of claim 8, further comprising:
a means for connecting to a public telephone network.
13. (Withdrawn) A method for providing a signal from a USB device over a local network to a local processor, the method comprising:
generating a USB packet at the USB device;
encapsulating the USB packet in one or more network packets;
transmitting the network packets over the network;
decapsulating the USB packet from the network packets; and
providing the USB packet to the processor.
14. (Withdrawn) The method of claim 13, wherein the local network is an Ethernet.
15. (Withdrawn) The method of claim 13, wherein the USB device is a keyboard.

16. (Withdrawn) A method for establishing a connection between a local processor and a USB device over a local network, the method comprising:
- configuring a USB device adapter candidate list, said list including the network address of at least one USB device adapter;
 - polling an address on the candidate list, said polling including encapsulating a USB packet in one or more network packets;
 - receiving a positive response from a USB device adapter to said polling, said receiving including decapsulating a USB packet from one or more network packets; and
 - adding the address and a USB device adapter identifier to a master list.
17. (Withdrawn) The method of claim 16, further comprising:
- polling a port on a USB adapter device on the master list, said polling including encapsulating a USB packet in one or more network packets;
 - receiving a positive response from a USB device connected to said port, said receiving including decapsulating a USB packet from one or more network packets; and
 - enumerating a USB device in the operating system of the processor.
18. (Withdrawn) A method for providing a signal from a USB device to a processor on the Internet, the method comprising:
- generating a USB packet at the USB device;
 - encapsulating the USB packet in one or more local network packets;

transmitting the local network packets over a local network;
decapsulating the USB packet from the local network packets;
encapsulating the USB packet in one or more IP packets;
transmitting the IP packets over the Internet; and
providing the IP packets to the processor.

19. (Withdrawn) An apparatus for providing a signal from a USB device over a local network to a local processor, comprising:

means for generating a USB packet at the USB device;
means for encapsulating the USB packet in one or more network packets;
means for transmitting the network packets over the network;
means for decapsulating the USB packet from the network packets; and
means for providing the USB packet to the processor.

20. (Withdrawn) The apparatus of claim 19, wherein the local network is an Ethernet.

21. (Withdrawn) The apparatus of claim 19, wherein the USB device is a keyboard.

22. (Withdrawn) An apparatus for establishing a connection between a local processor and a USB device over a local network, comprising:

means for configuring a USB device adapter candidate list, said list including the
network address of at least one USB device adapter;

means for polling an address on the candidate list, said means for polling including
means for encapsulating a USB packet in one or more network packets;
means for receiving a positive response from a USB device adapter to said polling,
said means for receiving including means for decapsulating a USB packet from
one or more network packets; and
means for adding the address and a USB device adapter identifier to a master list.

23. (Withdrawn) The apparatus of claim 22, further comprising:

means for polling a port on a USB adapter device on the master list, said means for
polling including means for encapsulating a USB packet in one or more network
packets;
means for receiving a positive response from a USB device connected to said port,
said means for receiving including means for decapsulating a USB packet from
one or more network packets; and
means for enumerating a USB device in the operating system of the processor.

24. (Withdrawn) An apparatus for providing a signal from a USB device to a processor

on the Internet, comprising:
means for generating a USB packet at the USB device;
means for encapsulating the USB packet in one or more local network packets;
means for transmitting the local network packets over a local network;
means for decapsulating the USB packet from the local network packets;
means for encapsulating the USB packet in one or more IP packets;

means for transmitting the IP packets over the Internet; and
means for providing the IP packets to the processor.

25. (Withdrawn) A program storage device readable by a machine, embodying a program of instructions executable by the machine to perform a method for providing a signal from a USB device over a local network to a local processor, the method comprising:
- generating a USB packet at the USB device;
 - encapsulating the USB packet in one or more network packets;
 - transmitting the network packets over the network;
 - decapsulating the USB packet from the network packets; and
 - providing the USB packet to the processor.
26. (Withdrawn) The device of claim 25, wherein the local network is an Ethernet.
27. (Withdrawn) The device of claim 25, wherein the USB device is a keyboard.
28. (Withdrawn) A program storage device readable by a machine, embodying a program of instructions executable by the machine to perform a method for establishing a connection between a local processor and a USB device over a local network, the method comprising:
- configuring a USB device adapter candidate list, said list including the network address of at least one USB device adapter;

polling an address on the candidate list, said polling including encapsulating a USB packet in one or more network packets;
receiving a positive response from a USB device adapter to said polling, said receiving including decapsulating a USB packet from one or more network packets; and
adding the address and a USB device adapter identifier to a master list.

29. (Withdrawn) The device of claim 28, wherein the method further comprising:
polling a port on a USB adapter device on the master list, said polling including encapsulating a USB packet in one or more network packets;
receiving a positive response from a USB device connected to said port, said receiving including decapsulating a USB packet from one or more network packets; and
enumerating a USB device in the operating system of the processor.

30. (Withdrawn) A program storage device readable by a machine, embodying a program of instructions executable by the machine to perform a method for providing a signal from a USB device to a processor on the Internet, the method comprising:
generating a USB packet at the USB device;
encapsulating the USB packet in one or more local network packets;
transmitting the local network packets over a local network;
decapsulating the USB packet from the local network packets;

encapsulating the USB packet in one or more IP packets;
transmitting the IP packets over the Internet; and
providing the IP packets to the processor.

31. (Currently Amended) A serial data bus remote host control driver, comprising:
a port for connecting to a network, said remote host control driver ~~port~~ configured to
communicate with ~~couple over said network~~ one or more serial data bus device
adapters via said port over the network, each of said serial data bus device
adapters having a discrete network address, ~~to said remote host control driver~~;
a network protocol stack, said protocol stack for encapsulating serial data bus
packets in network packets and for decapsulating serial data bus packets from
network packets;
a polling routine configured to poll each of possible device adapters connected to the
network in accordance with a candidate list, and create a master list of the serial
data bus device adapters which responded to the polling; and
a memory for ~~simultaneously~~ storing the master list, the master list containing the
discrete network address of each of said device adapters and an address(es) and
~~a corresponding~~ identifier of each serial data bus device connected via the
corresponding a respective serial data bus device adapter to the remote host
control driver.
32. (Currently Amended) The serial data bus remote host control driver of claim 31,
wherein further comprising a polling routine, said polling routine is further

configured to contact each of said device adapters in accordance with the master list, identify each of said serial data bus devices connected to each device adapter, and store the identifications of the serial data bus device in said memory.

33. (Previously Presented) The serial data bus host control driver of claim 31, where the network packets are Ethernet packets.

34-35. (Cancelled)

36. (Currently Amended) An Internet gateway, comprising:
- a port for connecting to the Internet; and
 - a serial data bus remote host control driver, said serial data bus remote host control driver including having:
 - (a) a port for connecting to a local network, said remote host control driver port configured to communicate with ~~couple over said network~~ one or more serial data bus device adapters via said port over the network, each of said serial data bus device adapters having a discrete network address, ~~to said remote host control driver~~;
 - (b) a local network protocol stack, said protocol stack for encapsulating serial data bus packets in local network packets and for decapsulating serial data bus packets from ~~local~~ network packets;
 - (c) a polling routine configured to poll each of possible device adapters connected to the network in accordance with a candidate list, and create a

master list of the serial data bus device adapters which responded to the polling; and

- (d) a memory for ~~simultaneously~~ storing the master list, the master list containing the discrete network address of each of said device adapters and an address(es) and a corresponding identifier of each serial data bus device connected via the corresponding a respective serial data bus device adapter to the remote host control driver; and
- ~~(d) a polling routine, said polling routine for contacting each of said device adapters, identifying each of said USB devices, and storing the identifications in said memory.~~

37. (Previously Presented) The Internet gateway of claim 36, where the local network is an Ethernet.
38. (Previously Presented) The Internet gateway of claim 36, further comprising a processor configured to receive unencapsulated serial data bus packets from the protocol stack.
39. (Previously Presented) The Internet gateway of claim 38, further comprising a means for connecting to a local video monitor.
40. (Previously Presented) The Internet gateway of claim 38, further comprising a means for connecting to a local telephone.

41. (Previously Presented) The Internet gateway of claim 38, further comprising a means for connecting to a public television cable.
42. (Previously Presented) The Internet gateway of claim 38, further comprising a means for connecting to a public telephone network.
43. (Currently Amended) A universal serial bus (USB) remote host control driver, comprising:
means for connecting to a network, said remote host control driver configured to communicate with network further connecting to one or more USB device adapters via said means for connecting over the network, each of said USB device adapters having a discrete network address, ~~to said remote host control device;~~
means for encapsulating USB packets in network packets and for decapsulating USB packets from network packets;
means for polling each of possible USB device adapters connected to the network in accordance with a candidate list, and create a master list of the USB device adapters which responded to the polling; and
means for ~~simultaneously~~ storing the master list, the mast list containing the discrete network address of each of said USB device adapters and an address(es) and a corresponding identifier of each USB device connected via the corresponding a respective USB device adapter to the remote host control driver.

44. (Cancelled)

45. (Currently Amended) An Internet gateway, comprising:

means for connecting to the Internet; and

a universal serial bus (USB) remote host control driver, said USB remote host

control driver including having:

- (a) means for connecting to a network, said remote host control driver configured to communicate with network further connecting to one or more USB device adapters via said means for connecting over the network, each of said USB device adapters having a discrete network address, to said remote host control device;
- (b) means for encapsulating USB packets in network packets and for decapsulating USB packets from network packets;
- (c) means for polling each of possible USB device adapters connected to the network in accordance with a candidate list, and create a master list of the USB device adapters which responded to the polling; and
- (d) means for ~~simultaneously~~ storing the master list, the mast list containing the discrete network address of each of said USB device adapters and an address(es) and a corresponding identifier of each USB device connected via the corresponding a-respective USB device adapter to the remote host control driver,; and

~~(d) polling means for contacting each of said device adapters, identifying each of said USB devices, and storing the identifications in said means for storing.~~

46. (Currently Amended) A serial data bus remote host control driver, comprising:
- means for connecting to a network, said remote host control driver configured to communicate with network further connecting to one or more serial data bus device adapters via said means for connecting over the network, each of said serial data bus device adapters having a discrete network address, ~~to said remote host control device;~~
- means for encapsulating serial data bus packets in network packets and for decapsulating serial data bus packets from network packets; ~~and~~
- means for polling each of possible device adapters connected to the network in accordance with a candidate list, and create a master list of the serial data bus device adapters which responded to the polling; and
- means for ~~simultaneously~~ storing the master list, the mast list containing the discrete network address of each of said device adapters and an address(es) and a corresponding identifier of each serial data bus device connected via the corresponding a-respective serial data bus device adapter to the remote host control driver.

47. (Cancelled)

48. (Currently Amended) An Internet gateway, comprising:

means for connecting to the Internet; and

a serial data bus remote host control driver, said serial data bus remote host control driver including:

- (a) means for connecting to a network, said remote host control driver configured to communicate with network further connecting to one or more serial data bus device adapters via said means for connecting over the network, each of said serial data bus device adapters having a discrete network address, ~~to said remote host control device;~~
- (b) means for encapsulating serial data bus packets in network packets and for decapsulating serial data bus packets from network packets;
- (c) means for polling each of possible device adapters connected to the network in accordance with a candidate list, and create a master list of the serial data bus device adapters which responded to the polling; and
- (d) means for ~~simultaneously~~ storing the master list, the mast list containing the discrete network address of each of said device adapters and an address(es) and a corresponding identifier of each serial data bus device connected via the corresponding a respective serial data bus device adapter to the remote host control driver.
- ~~(d) polling means for contacting each of said device adapters, identifying each of said serial data bus devices, and storing the identifications in said memory.~~

49. (New) The Internet gateway of claim 6, wherein said polling routine is further configured to contact each of said device adapters in accordance with the master list, identify each of said USB devices connected to each device adapter, and store the identifications of the USB devices in said memory.
50. (New) The Internet gateway of claim 36, wherein said polling routine is further configured to contact each of said device adapters in accordance with the master list, identify each of said serial data bus devices connected to each device adapter, and store the identifications of the serial data bus devices in said memory.
51. (New) The USB remote host control driver of claim 43, wherein said means for polling is further configured to contact each of said device adapters in accordance with the master list, identify each of said USB devices connected to each USB device adapter, and store the identifications of the USB devices in said means for storing.
52. (New) The Internet gateway of claim 45, wherein said means for polling is further configured to contact each of said USB device adapters in accordance with the master list, identify each of said USB devices connected to each USB device adapter, and storing the identifications of the USB devices in said means for storing.
53. (New) The serial data bus remote host control driver of claim 46, wherein said means for polling is further configured to contact each of said device adapters in accordance with the master list, identify each of said serial data bus devices

connected to each device adapter, and store the identifications of the serial data bus devices in said means for storing.

54. (New) The Internet gateway of claim 48, wherein said means for polling is further configured to contact each of said device adapters in accordance with the mast list, identify each of said serial data bus devices connected to each device adapter, and storing the identifications of the serial data bus devices in said means for storing.

55. (New) A system comprising:
a universal serial bus (USB) remote host control driver; and
at least one universal serial bus (USB) device adapter, said USB remote host control driver being connected to at least one USB device via said at least one USB device adapter over a network,
wherein said USB remote host control driver including:

- (a) a port for connecting to the network, said remote host control driver configured to communicate with said at least one USB device adapter via said port over the network, each USB device adapter having a discrete network address;
- (b) a network protocol stack, said protocol stack for encapsulating USB packets in network packets and for decapsulating USB packets from network packets;

- (c) a polling routine configured to poll each of possible USB device adapters connected to the network in accordance with a candidate list, and create a master list of the USB device adapters which responded to the polling; and
- (d) a memory for storing the master list, the master list containing the discrete network address of each of said USB device adapters and an identifier of each USB device connected via the corresponding USB device adapter to the remote host control driver,

and wherein each of said USB device adapters including:

- (a) a memory for storing an assigned network address;
- (b) a network protocol stack, said protocol stack for encapsulating USB packets in network packets and for decapsulating USB packets from the network packets; and
- (c) a bridging task for receiving USB packets from one or more USB devices coupled to the corresponding USB device adapters and for passing USB device addressing information and said USB packets to said network protocol stack.

56. (New) The system of claim 55, wherein said polling routine is further configured to contact each of said USB device adapters in accordance with the master list, identify each of said USB devices connected to each USB device adapter, and store the identifications of the USB devices in said memory.

57. (New) The system of claim 55, wherein the network packets are Ethernet packets.

58. (New) A system comprising:

a serial data bus remote host control driver; and

at least one serial data bus device adapter, said serial data bus remote host control driver connected to at least one serial data bus device via said at least one said serial data bus device adapter over a network,

wherein said serial data bus remote host control driver including:

- (a) a port for connecting to the network, said remote host control driver configured to communicate with at least one serial data bus device adapter via said port over the network, each said serial data bus device adapter having a discrete network address;
- (b) a network protocol stack, said protocol stack for encapsulating serial data bus packets in network packets and for decapsulating serial data bus packets from network packets;
- (c) a polling routine configured to poll each of possible device adapters connected to the network in accordance with a candidate list, and create a master list of the serial data bus device adapters which responded to the polling; and
- (d) a memory for storing the master list, the master list containing the discrete network address of each of said device adapters and an identifier of each serial data bus device connected via the corresponding serial data bus device adapter to the remote host control driver,

and wherein each of said serial data bus device adapters including:

- (a) a memory for storing an assigned network address;
- (b) a network protocol stack, said protocol stack for encapsulating serial data bus packets in network packets and for decapsulating serial data bus packets from the network packets; and
- (c) a bridging task for receiving serial data bus packets from one or more serial data bus devices coupled to the corresponding device adapters and for passing serial data bus device addressing information and said serial data bus packets to said network protocol stack.

59. (New) The system of claim 58, wherein said polling routine is further configured to contact each of said device adapters in accordance with the master list, identify each of said serial data bus devices connected to each device adapter, and store the identifications of the serial data bus devices in said memory.

60. (New) The system of claim 58, where the network packets are Ethernet packets.

61. (New) A system comprising:

a universal serial bus (USB) remote host control driver; and
at least one of USB device adapters, said USB remote host control driver connected to the corresponding USB devices via at least one said USB device adapter over a network,

wherein said USB remote host control driver including:

- (a) means for connecting to the network, said remote host control driver configured to communicate with said at least one USB device adapter via said means over the network, each of said USB device adapters having a discrete network address;
- (b) means for encapsulating USB packets in network packets and for decapsulating USB packets from network packets;
- (c) means for polling each of possible USB device adapters connected to the network in accordance with a candidate list, and create a master list of the USB device adapters which responded to the polling; and
- (d) means for storing the master list, the master list containing the discrete network address of each of said USB device adapters and an identifier of each USB device connected via the corresponding USB device adapter to the remote host control driver,

and wherein each of said USB device adapters having:

- (a) means for storing an assigned network address;
- (b) means for encapsulating USB packets in network packets and for decapsulating USB packets from the network packets; and
- (c) means for receiving USB packets from one or more USB devices coupled to the corresponding USB device adapters and for passing USB device addressing information and said USB packets to said means for encapsulating.

62. (New) The system of claim 61, wherein said means for polling is further configured to contact each of said USB device adapters in accordance with the master list, identify each of said USB devices connected to each USB device adapter, and store the identifications of the USB devices in said means for storing.

63. (New) A system comprising:
a serial data bus remote host control driver; and
at least one serial data bus device adapter, said serial data bus remote host control driver connected to at least one serial data bus device via at least one serial data bus device adapter over a network,
wherein said serial data bus remote host control driver including:
(a) means for connecting to the network, said remote host control driver configured to communicate with said at least one serial data bus device adapter via said means over the network, each of said serial data bus device adapters having a discrete network address;
(b) means for encapsulating serial data bus packets in network packets and for decapsulating serial data bus packets from network packets;
(c) means for polling each of possible serial data bus device adapters connected to the network in accordance with a candidate list, and create a master list of the serial data bus device adapters which responded to the polling; and
(d) means for storing the master list, the master list containing the discrete network address of each of said serial data bus device adapters and an

identifier of each serial data bus device connected via the corresponding serial data bus device adapter to the remote host control driver, and wherein each of said serial data bus device adapters including:

- (a) means for storing an assigned network address;
- (b) means for encapsulating serial data bus packets in network packets and for decapsulating serial data bus packets from the network packets; and
- (c) means for receiving serial data bus packets from one or more serial data bus devices coupled to the corresponding device adapters and for passing serial data bus device addressing information and said serial data bus packets to said means for encapsulating.

64. (New) The system of claim 63, wherein said means for polling is further configured to contact each of said device adapters in accordance with the master list, identify each of said serial data bus devices connected to each device adapter, and store the identifications of the serial data bus devices in said means for storing.